

REMARKS

The application has been amended to place it in condition for allowance at the time of the next Official Action.

Claims 15-19 were previously pending in the application. Claim 17 is canceled; leaving claims 15, 16, 18 and 19 for consideration.

Claims 15 and 16 were rejected under 35 USC §103(a) over USAMI (JP 202-303574) in view of MINAMI 4,874,808. That rejection is respectfully traversed.

Amending claim 15 to include the subject matter of claim 17 is believed to obviate the above rejection as to this claim. As to claim 16, this claim recites that a visible light source is disposed and visible light from the visible light source is superimposed on the optical axis of the terahertz waves.

Paragraph [0030] of USAMI discloses the use of a light source whose main wavelength is about 780-800 nm of a near infrared region. Such near infrared light does not meet the recited visible light.

MINAMI is only cited for the disclosure of cycloolefin components and does not overcome the above shortcoming of USAMI. The above noted feature is missing from each of the references, is absent from the combination and thus, the proposed combination of references does not meet the present claims.

Claims 17 and 18 were rejected under 35 USC §103(a) as being unpatentable over USAMI in view of MINAMI, and further in view of NUSS 5,789,750. That rejection is respectfully traversed.

The Official Action recognizes that neither USAMI nor MINAMI discloses that the frequency of the terahertz waves is 100 GHz to 10 THz. NUSS is offered for this feature with the Official Action concluding that it would have been obvious to operate between 100 GHz and 20 THz to improve the imaging diversity.

However, this position is untenable at least because such modification would render USAMI unsuitable for its intended purpose.

Paragraph [0038] of USAMI discloses the repetition rate of terahertz pulsed light L4 is in the order of MHz to several kHz and states that it is impossible to measure the wave of the terahertz pulsed light with the known configuration. Paragraphs [0039] and [0040] of USAMI disclose the use of a time delay ( $\tau$ ) as part of the method of measuring terahertz light in the MHz to kHz range.

Source 14 of NUSS has a repetition rate of 100 MHz. There is no reasonable expectation that increasing the repetition rate by 2 to 6 orders of magnitude from the MHz to several kHz of USAMI would enable the time delay required by USAMI. Thus, the proposed modification appears to render USAMI unsuitable for the intended purpose of measuring in the MHz to kHz range.

The motivation to make the proposed modification is absent since the success of the modification could not reasonably be expected, and thus, the proposed combination of references would not meet the present claims.

Claim 19 was rejected under 35 USC §103(a) as being unpatentable over USAMI in view of MINAMI. That rejection is respectfully traversed.

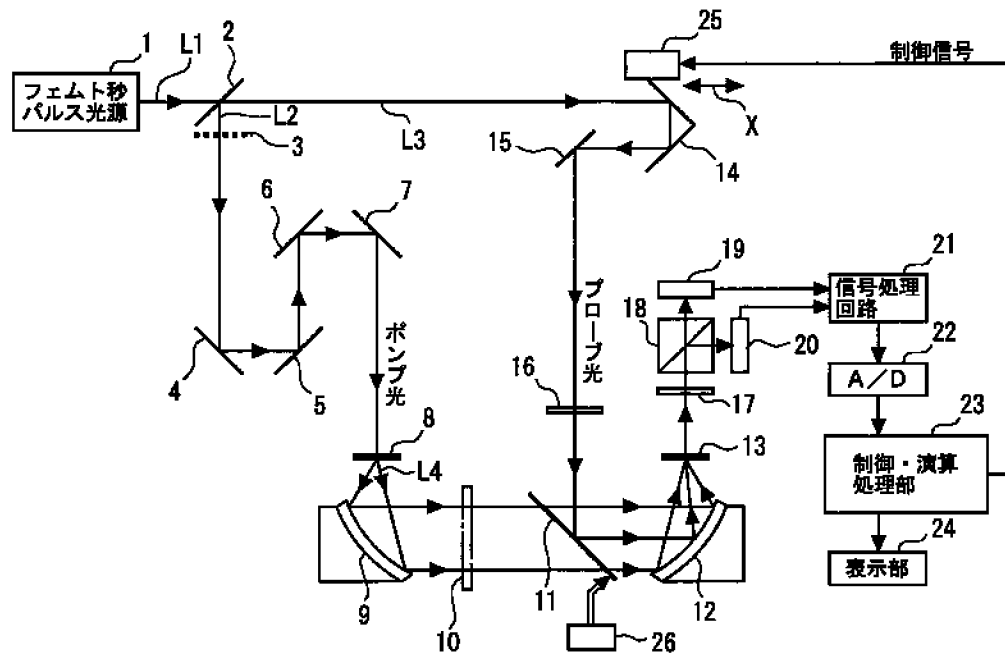
The Official Action does not provide either specific element numbers or paragraphs and rather, offers broad passages of USAMI for the recited elements. Although it appears that some of the recited elements are disclosed by USAMI, nevertheless, even the disclosed elements are not arranged in the manner recited.

Claim 19 recites in part a first light transmission regulator for defining a light transmission path between the terahertz wave generator and the terahertz wave detector and regulating the optical axis, a light semi-transmissive plate made of cycloolefin for transmitting terahertz waves on the optical axis between the first light transmission regulator and the terahertz wave detector and reflecting light incident at a predetermined incident angle, and a second light transmission regulator set on the optical axis between the light semi-transmissive plate and the terahertz wave detector. Predetermined visible light enters the light semi-transmissive plate as pilot light and is reflected by the light semi-transmissive plate and

the optical axis of the reflected visible light is superimposed on the optical axis of the terahertz waves and the optical axis of the terahertz waves can be visually recognized in a simulated manner by the visible light.

The recited light transmission regulator may be, for example, the aperture 1 as seen Figure 3 of the present application. USAMI does not disclose a light transmission regulator. Rather, USAMI teaches away from such regulator in favor of an alignment adjustment mechanism 26, 35. See also paragraph [0004], which teaches away from conventional pinholes/apertures. Moreover, rotation mechanism 26 of USAMI is used to align a terahertz wave generator itself. USAMI does not disclose alignment of an axis of the terahertz wave and an axis of visible light.

In any event, the elements of USAMI are not arranged in the manner recited. Figure 1 of USAMI, which is representative of USAMI and reproduced below, shows a terahertz light generator 8 (paragraph [0031]), curved mirror 9 (paragraph [0032]), device under test 10, beam splitter 11, curved mirror 12 and terahertz photodetector 13 (§ [0032]).



USAMI Figure 1

If curved mirrors 9 and 12 of USAMI are supposed to be the first and second light transmission regulators and beam splitter 11 is supposed to be a semi-transmissive plate, these elements do not meet the claims.

Element 11 of USAMI fails in that it does not transmit terahertz waves on the optical axis between the first light transmission regulator (curved mirror 9) and the terahertz wave detector 13. Similarly, element 12 of USAMI fail in that it is not on the optical axis between the light semi-transmissive plate 11 and the terahertz wave detector 13.

Figures 4-6 of USAMI also fail in that there is no element that meets the second light transmission regulator.

The above noted differences in the structures are further evidenced by the different purposes of the present

invention and that of USAMI. USAMI aligns a focus on the detector 13 after passing the object 10 with a probe light by detecting changes in an electric field, while the present claims align a light beam before passing the object with visible light.

Moreover, the probe light L1 of USAMI is not visible light. Rather, paragraph [0030] of USAMI describes this light as having a wavelength of 780 to 800 nm of a near infrared region.

MINAMI is only cited for the disclosure of cycloolefin components and does not overcome the shortcomings of USAMI set forth above.

The above noted features are missing from each of the references, are absent from the proposed combination of references, and thus, the proposed combination of references does not meet the present claims.

In view of the present amendment and the foregoing remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON

/Liam McDowell/

---

Liam McDowell, Reg. No. 44,231  
209 Madison Street, Suite 500  
Alexandria, Virginia 22314  
Telephone (703) 521-2297  
Telefax (703) 685-0573  
(703) 979-4709

LM/snt